



Specification For Approval

Customer name : _____

Product name : NTC Thermistor

Customer PN : _____

MFG PN : CWFB0104FC-401F1C

MFG			Customer Confirmation		
Make	Check	Approval	Test	Check	Approval
HD CHENG	XR LU	DZ LING			

(Company name)

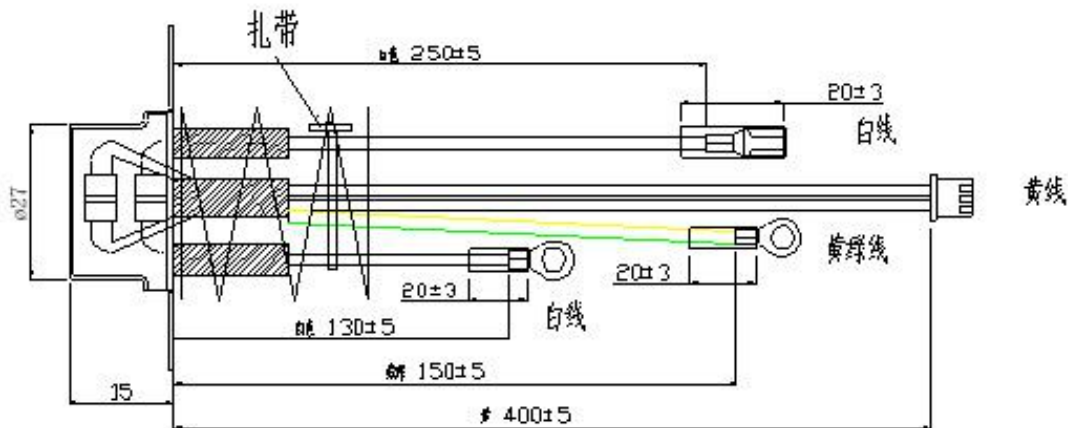
Confirm got the spec and accept as our company's warehouse accept standard.

Version	Revise content	Forwarder	Date
A/1	Just made	Cheng	2017-03-09



1、Overall Dimension

(Unit: mm)



2、Material explanation

NO	COMPONENT	MATERIAL AND SPECIFICATIONS	Q'TY	REMARK
2-1.	Element	R25=100KΩ±1% B25/50=3950±1% DD	1	
		SM182A0 216°C 250V 10A CCC	1	
2-2.	Housing	48.2×ø60+ø27.5+ø34(High 15mm) Aluminum,	1	
		Inside the card ø 26*0.5+19 Y046J-A(Iron)	1	
		wild card 1.5×0.8 ground wire Y137H-A(Aluminum),	1	
		ø30.0×ø32×1.0 Stainless steel spring Y0143H-A	1	
2-3.	Coating	Thermal conductive silicone		White
2-4.	Lead Wire	UL 3122# 18AWG*1C 200°C 300V Braided wire(Red),	2	
		UL 3122# 18AWG*1C 200°C 300V Braided wire(Green / yellow)	2	
		UL 1332# 24AWG*1C 200°C 300V (yellow)	2	
2-5.	Casing	PTFE Casing L=70mm, Inside the outer plastic fibers Φ6.5*4.6 L1=70mm, L2=25mm ,ø3.5 L=15mm*2(ring terminal)	7	
2-6.	Tie	Cable Ties	1	White
2-7.	Copper strip	Riveting copper strip : 6.0 (riveting fuse), 4.0 (riveting Ground wire),2.0 (Riveting resistance wire)	6	
2-8.	Terminal	XH-2.54 & XH-3Y	3	White
		187 Straight lock terminals (Riveting fuse the long end), 187 protect the casing(blue)	1	
		4.2*16.5 Ring terminal *2 (Ground wire end + Fuse(short end))	1	

**3、 Part Number :**

$$\frac{\text{CWF}}{1} \quad \frac{-\times\times}{2} \quad \frac{\times\times\times}{3} \quad \frac{\times}{4} \quad \frac{\times}{5} \quad \frac{\times\times\times\times}{6} \quad \frac{\times}{7} \quad 8$$

- (1) NTC Thermistor Mark;
- (2) Head shape sign (B:Housing Type, D:Dip-Coating, M:Molding);
- (3) Series Type (0:Epoxy coating structure, 1:Epoxy coating structure(high temp)) ;
- (4) Nominal Resistance at 25°C (previous two digits are significant figures, The last digit specifies the number of zeros to follow.);
- (5) Resistance tolerance (%);
- (6) B Value constant sign In general, it is value of 25/50Deg, other conditions will remark and explain;
- (7) Length Sign (unit is mm) ;
- (8) Special code ;

4、 Electrical Performance:

NO	Item	Sign	Test Conditions	Min.	Normal value	Max.	Unit
4-1.	Resistance at 25°C	R25	Ta=25±0.05°C P _T ≤0.1mw	99.0	100.0	101.0	kΩ
4-2.	B Value	B25/50	$B=LN \frac{R_{T1}}{R_{T2}} / (\frac{1}{T1} - \frac{1}{T2})$	3910.5	3950	3989.5	k
4-3.	Dissipation factor	σ	Ta=25±0.5°C	2.5	/	/	mw/°C
4-4.	Time constant	τ	Ta=25±0.5°C	/	/	20	sec
4-5.	Insulation resistance	/	500VDC	100	/	/	MΩ
4-6.	Withstand voltage	/	1500V AC	5	/	/	Sec
4-7.	Operating temp.range	/	/	-30	/	+200	°C

5、 Reliability Test

NO	Item	Technical requirements	Test conditions and method
5-1.	High temp. Test	ΔR/R25≤±3% ΔB/B≤±3% No change with withstand voltage. Insulation performance. Appearance without damage.	105±5°C, power on 500±24 hrs, DC0.2mA
5-2.	Low temp. tes		-20±5°C, power on 500±24 hrs, DC0.2mA
5-3.	Endure moisture test		Store in environment 55±2°C,90%-95%RH for 240±24 hrs
5-4.	Temp. cycle test		-20°C×30min→Room temp.×10min→ in 100°C water×30min→Room temp.×10min 10 cycles
5-5.	Load electrify test		Power on DC1mA, 500hrs in room temp. and humid.



5-6	Tensile tests		Applying 2 kg force lasts 1 min.
5-7	Drop test		Free fall into concrete floor from height 1M , 10 cycle。
5-8	Vibration test		Frequency range: 10~55HZ Total amplitude 1.52mm 1 cycle 1 min , direction and time X、Y、Z axis 2Hr each。
5-9	Bending test		Bend 180°binding site wire and epoxy resin。 Back and forth 10 times

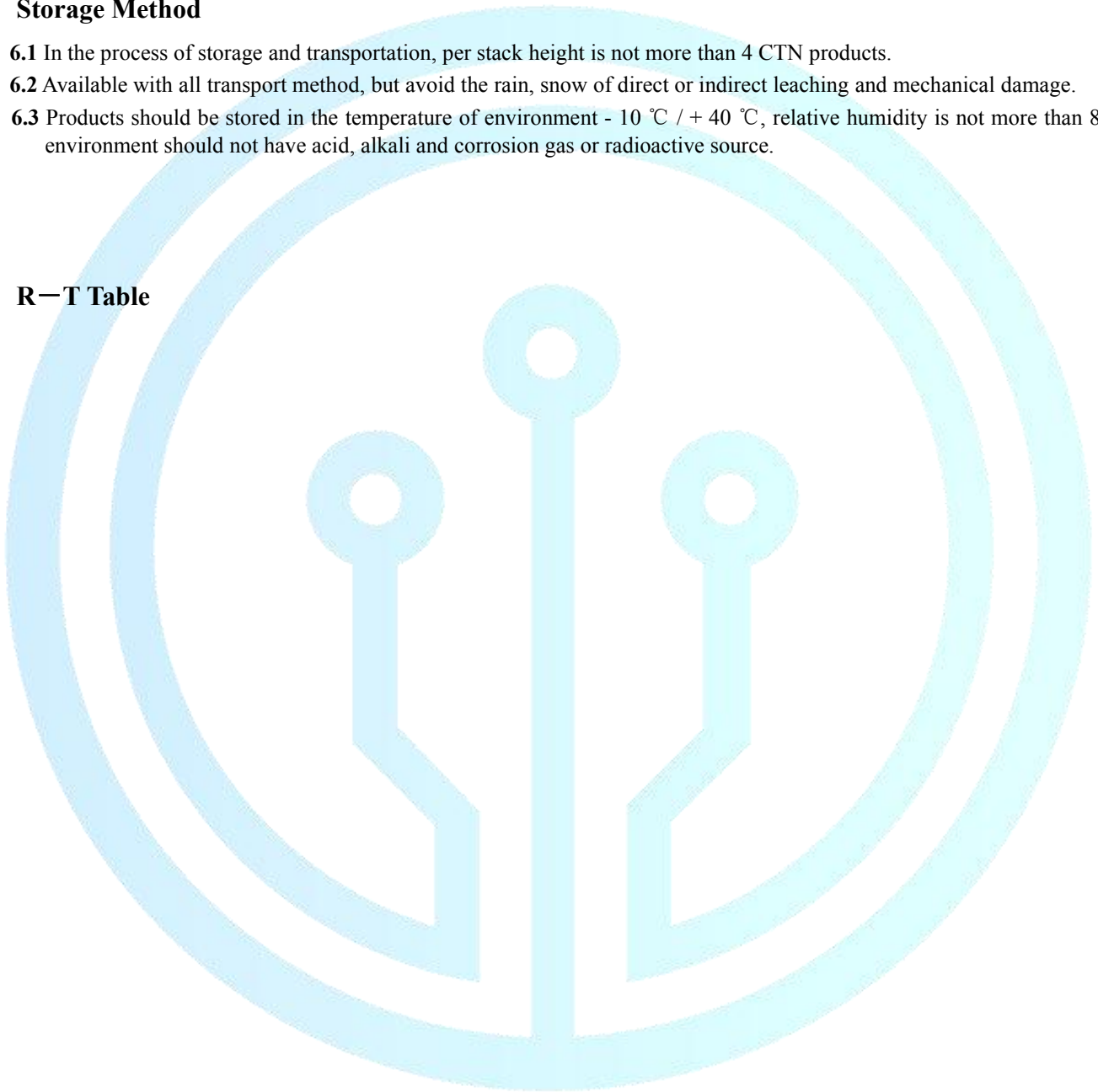
6、 Storage Method

6.1 In the process of storage and transportation, per stack height is not more than 4 CTN products.

6.2 Available with all transport method, but avoid the rain, snow of direct or indirect leaching and mechanical damage.

6.3 Products should be stored in the temperature of environment - 10 °C / + 40 °C, relative humidity is not more than 80%, environment should not have acid, alkali and corrosion gas or radioactive source.

7、 R-T Table



**R-T CONVERSION TABLE**R₂₅=100KΩ±1%B_{25/50}=3950K±1%

T/°C	R _{min}	R _{cen}	R _{max}	T/°C	R _{min}	R _{cen}	R _{max}
-40	2843.200	2971.000	3104.220	-2	339.128	346.840	354.693
-39	2675.360	2793.890	2917.380	-1	322.919	330.099	337.406
-38	2517.270	2627.180	2741.610	0	308.951	315.680	322.523
-37	2368.510	2470.400	2576.420	1	293.060	299.283	305.608
-36	2228.640	2323.090	2421.300	2	279.308	285.101	290.985
-35	2097.240	2184.770	2275.740	3	266.279	271.671	277.144
-34	1973.850	2054.980	2139.230	4	253.930	258.947	264.037
-33	1858.060	1933.240	2011.270	5	242.221	246.889	251.622
-32	1749.430	1819.110	1891.380	6	231.114	235.457	239.856
-31	1647.550	1712.140	1779.080	7	220.575	224.614	228.703
-30	1552.030	1611.900	1673.910	8	210.571	214.326	218.125
-29	1462.480	1517.980	1575.430	9	201.071	204.561	208.090
-28	1378.530	1430.000	1483.230	10	192.047	195.290	198.567
-27	1299.840	1347.570	1396.910	11	183.472	186.484	189.526
-26	1226.080	1270.350	1316.080	12	175.321	178.117	180.940
-25	1156.930	1198.000	1240.400	13	167.571	170.165	172.783
-24	1092.090	1130.190	1169.520	14	160.199	162.605	165.032
-23	1031.280	1066.650	1103.120	15	153.185	155.416	157.664
-22	974.244	1007.070	1040.910	16	146.510	148.577	150.658
-21	920.729	951.217	982.616	17	140.155	142.068	143.994
-20	870.505	898.820	927.963	18	134.103	135.874	137.654
-19	823.354	849.657	876.713	19	128.339	129.976	131.620
-18	779.074	803.514	828.638	20	122.847	124.358	125.876
-17	737.476	760.189	783.524	21	117.613	119.008	120.407
-16	698.381	719.495	741.172	22	112.623	113.909	115.198
-15	661.626	681.256	701.399	23	107.865	109.049	110.235
-14	627.056	645.311	664.030	24	103.328	104.417	105.507
-13	594.528	611.507	628.907	25	99.000	100.000	101.000
-12	563.908	579.703	595.880	26	94.788	95.786	96.786
-11	535.073	549.768	564.810	27	90.772	91.767	92.765
-10	507.905	521.579	535.568	28	86.941	87.932	88.926
-9	482.298	495.024	508.035	29	83.287	84.272	85.261
-8	458.150	469.995	482.099	30	79.800	80.779	81.761
-7	435.370	446.396	457.656	31	76.473	77.443	78.418
-6	413.869	424.134	434.609	32	73.297	74.258	75.224
-5	393.567	403.123	412.870	33	70.264	71.215	72.172
-4	374.389	383.286	392.355	34	67.368	68.309	69.255
-3	356.264	364.548	372.987	35	64.603	65.532	66.467



R-T CONVERSION TABLE

R ₂₅ =100KΩ±1%				B _{25/50} =3950K±1%			
T/°C	R _{min}	R _{cen}	R _{max}	T/°C	R _{min}	R _{cen}	R _{max}
36	61.961	62.878	63.802	74	14.248	14.671	15.104
37	59.437	60.341	61.253	75	13.749	14.162	14.586
38	57.024	57.916	58.815	76	13.269	13.673	14.087
39	54.719	55.597	56.484	77	12.809	13.203	13.608
40	52.515	53.380	54.253	78	12.366	12.751	13.146
41	50.408	51.259	52.119	79	11.940	12.316	12.703
42	48.394	49.230	50.076	80	11.531	11.898	12.276
43	46.467	47.289	48.121	81	11.138	11.496	11.865
44	44.624	45.432	46.250	82	10.759	11.109	11.470
45	42.861	43.654	44.458	83	10.395	10.737	11.089
46	41.174	41.952	42.742	84	10.045	10.379	10.723
47	39.559	40.323	41.098	85	9.708	10.035	10.371
48	38.014	38.764	39.524	86	9.384	9.703	10.031
49	36.535	37.270	38.016	87	9.072	9.383	9.704
50	35.119	35.840	36.571	88	8.772	9.076	9.389
51	33.763	34.469	35.187	89	8.483	8.780	9.086
52	32.464	33.156	33.860	90	8.205	8.495	8.794
53	31.221	31.898	32.588	91	7.937	8.220	8.513
54	30.029	30.693	31.368	92	7.679	7.956	8.241
55	28.888	29.538	30.199	93	7.431	7.701	7.980
56	27.794	28.430	29.078	94	7.192	7.455	7.728
57	26.746	27.368	28.002	95	6.961	7.219	7.485
58	25.741	26.350	26.971	96	6.739	6.990	7.251
59	24.778	25.374	25.981	97	6.525	6.770	7.025
60	23.855	24.437	25.032	98	6.318	6.558	6.807
61	22.969	23.539	24.121	99	6.119	6.354	6.597
62	22.120	22.678	23.247	100	5.943	6.173	6.410
63	21.306	21.851	22.408	101	5.743	5.966	6.198
64	20.525	21.057	21.602	102	5.564	5.783	6.010
65	19.775	20.296	20.828	103	5.392	5.606	5.827
66	19.056	19.565	20.086	104	5.226	5.435	5.652
67	18.366	18.863	19.372	105	5.066	5.270	5.482
68	17.703	18.189	18.687	106	4.911	5.111	5.318
69	17.067	17.542	18.029	107	4.762	4.957	5.159
70	16.457	16.921	17.397	108	4.618	4.809	5.007
71	15.871	16.324	16.789	109	4.479	4.666	4.859
72	15.308	15.751	16.205	110	4.345	4.527	4.716
73	14.767	15.200	15.644	111	4.216	4.394	4.578



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T/°C	R _{min}	R _{cen}	R _{max}	T/°C	R _{min}	R _{cen}	R _{max}
112	4.091	4.264	4.445	150	1.433	1.510	1.590
113	3.970	4.140	4.316	151	1.397	1.472	1.551
114	3.853	4.019	4.192	152	1.362	1.436	1.513
115	3.740	3.903	4.072	153	1.329	1.401	1.476
116	3.631	3.790	3.955	154	1.296	1.367	1.441
117	3.526	3.681	3.843	155	1.264	1.333	1.406
118	3.424	3.576	3.734	156	1.233	1.301	1.372
119	3.326	3.474	3.629	157	1.203	1.270	1.340
120	3.230	3.376	3.527	158	1.174	1.239	1.308
121	3.138	3.280	3.428	159	1.146	1.210	1.277
122	3.049	3.188	3.333	160	1.118	1.181	1.247
123	2.963	3.099	3.241	161	1.091	1.153	1.218
124	2.880	3.013	3.151	162	1.065	1.126	1.189
125	2.799	2.929	3.065	163	1.040	1.099	1.161
126	2.721	2.849	2.981	164	1.016	1.073	1.134
127	2.646	2.770	2.900	165	0.992	1.048	1.108
128	2.573	2.695	2.822	166	0.968	1.024	1.083
129	2.502	2.621	2.746	167	0.946	1.000	1.058
130	2.434	2.550	2.672	168	0.924	0.977	1.034
131	2.367	2.481	2.601	169	0.902	0.955	1.010
132	2.303	2.415	2.532	170	0.882	0.933	0.988
133	2.241	2.350	2.464	171	0.861	0.912	0.965
134	2.181	2.288	2.400	172	0.842	0.891	0.944
135	2.122	2.227	2.337	173	0.822	0.871	0.923
136	2.066	2.168	2.276	174	0.804	0.852	0.902
137	2.011	2.111	2.216	175	0.786	0.832	0.882
138	1.958	2.056	2.159	176	0.768	0.814	0.863
139	1.907	2.003	2.103	177	0.751	0.796	0.844
140	1.857	1.951	2.049	178	0.734	0.778	0.825
141	1.808	1.900	1.997	179	0.718	0.761	0.807
142	1.761	1.852	1.946	180	0.702	0.744	0.790
143	1.716	1.804	1.897	181	0.686	0.728	0.773
144	1.672	1.758	1.849	182	0.671	0.712	0.756
145	1.629	1.714	1.803	183	0.656	0.697	0.740
146	1.587	1.670	1.757	184	0.642	0.682	0.724
147	1.547	1.628	1.714	185	0.628	0.667	0.708
148	1.508	1.588	1.671	186	0.615	0.653	0.693
149	1.470	1.548	1.630	187	0.601	0.639	0.679



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T/°C	R _{min}	R _{cen}	R _{max}	T/°C	R _{min}	R _{cen}	R _{max}
188	0.588	0.625	0.665	226	0.274	0.294	0.315
189	0.576	0.612	0.651	227	0.269	0.289	0.309
190	0.564	0.599	0.637	228	0.265	0.283	0.304
191	0.552	0.587	0.624	229	0.260	0.278	0.298
192	0.540	0.574	0.611	230	0.255	0.273	0.293
193	0.529	0.562	0.598	231	0.250	0.268	0.288
194	0.518	0.551	0.586	232	0.246	0.264	0.283
195	0.507	0.539	0.574	233	0.242	0.259	0.278
196	0.496	0.528	0.562	234	0.237	0.254	0.273
197	0.486	0.517	0.551	235	0.233	0.250	0.268
198	0.476	0.507	0.540	236	0.229	0.246	0.263
199	0.466	0.497	0.529	237	0.225	0.241	0.259
200	0.457	0.487	0.518	238	0.221	0.237	0.254
201	0.447	0.477	0.508	239	0.217	0.233	0.250
202	0.438	0.467	0.498	240	0.213	0.229	0.246
203	0.429	0.458	0.488	241	0.210	0.225	0.242
204	0.421	0.449	0.478	242	0.206	0.221	0.238
205	0.412	0.440	0.469	243	0.203	0.218	0.234
206	0.404	0.431	0.460	244	0.199	0.214	0.230
207	0.396	0.423	0.451	245	0.196	0.210	0.226
208	0.388	0.414	0.442	246	0.192	0.207	0.222
209	0.381	0.406	0.433	247	0.189	0.203	0.219
210	0.373	0.398	0.425	248	0.186	0.200	0.215
211	0.366	0.391	0.417	249	0.183	0.197	0.211
212	0.359	0.383	0.409	250	0.180	0.194	0.208
213	0.352	0.376	0.401				
214	0.345	0.368	0.394				
215	0.338	0.361	0.386				
216	0.332	0.355	0.379				
217	0.325	0.348	0.372				
218	0.319	0.341	0.365				
219	0.313	0.335	0.358				
220	0.307	0.329	0.351				
221	0.301	0.323	0.345				
222	0.296	0.317	0.339				
223	0.290	0.311	0.332				
224	0.285	0.305	0.326				
225	0.280	0.299	0.321				